PROGRAM BRIEF

Women's Health Highlights

Agency for Healthcare Research and Quality • 2101 East Jefferson Street • Rockville, MD 20852

AHRQ is the lead agency charged with supporting research designed to improve the quality of health care, reduce its cost, address patient safety and medical errors, and broaden access to essential services. AHRQ sponsors and conducts research that provides evidence-based information on health care outcomes; quality; and cost, use, and access. The information helps health care decisionmakers—patients and clinicians, health system leaders, and policymakers—make more informed decisions and improve the quality of health care services.

U.S. Department of Health and Human Services
Public Health Service

Introduction

The life expectancy of U.S. women has nearly doubled in the past 100 years, from 48 in 1900 to nearly 79 in 1996, compared with a 1996 average of 73 for men. Although women have a longer life expectancy than men, they do not necessarily live those extra years in good physical and mental health.

In 1900, the leading causes of mortality among U.S. women included infectious diseases and complications of pregnancy and childbirth. Today, the chronic conditions of heart disease, cancer, and stroke account for 63 percent of American women's deaths and are the leading causes of mortality for both women and men.

The Agency for Healthcare Research and Quality (AHRQ) supports research on all aspects of health care provided to women, including quality, access, cost, and outcomes. This summary presents highlights from a cross-section of AHRQ's current and recently completed research projects on women's health.

Please see page 19 to find out how to get more detailed information on AHRQ's research programs, including grant announcements and application kits. An asterisk (*) indicates that reprints of an intramural study or copies of other publications are available from AHRQ. Two asterisks (**) identify materials that are available from the National Technical Information Service (NTIS). See page 19 for ordering information.

Cardiovascular Disease

Heart disease is the number one killer of women in the United States. More than one-third of all deaths among U.S. women are due to heart disease, which usually occurs about 10 years later in life in women than in men. There are substantial differences in heart disease mortality between white and black women; the heart disease mortality rate is about two-thirds higher for black women than white women. However, heart disease mortality is lower among Hispanic, American Indian, and Asian/Pacific Islander women compared with white women.

Research in Progress

- *Researchers examine differences by race and sex in use of cardiac procedures and tests.*

Researchers at Brigham and Women's Hospital in Boston are conducting a study of 3,400 patients (about half are women) with chest pain to identify reasons for previously documented differences in the use of exercise tolerance tests, coronary angiography, bypass surgery, and coronary angioplasty in men and women and among patients of different racial/ethnic backgrounds. Paula A. Johnson, Principal Investigator (AHRQ grant HS08302).

Recent Findings

- *Age and sex are significant predictors of death after heart attack.*

In an editorial accompanying study findings on male and female mortality rates after heart attack, this researcher notes that the interaction of age and sex remains a significant predictor of heart attack-related death, even after adjustment for demographic factors, clinical characteristics, and cardiac treatment while hospitalized. The study reported an 11 percent, 2-year mortality rate for women before age 60 (vs. 7 percent for men) and a lower mortality rate for women after age 79 (46 vs. 51 percent for men). Ayanian, *Ann Intern Med* 134(3):239-241, 2001 (AHRQ grant HS09718).

- *Women and minorities have atypical symptoms when suffering a heart attack or angina.*

Emergency room (ER) doctors miss diagnosing about 2 percent of patients with heart attack or unstable angina because they do not have chest pain or other symptoms typical of cardiac emergency. When these patients are mistakenly sent home from the ER, they are twice as likely to die from their heart problems as similar patients who are admitted to the hospital. The patients in this study who were misdiagnosed tended to be women under the age of 55 or minorities, to report shortness of breath as their chief symptom—instead of chest pain—and/or to have apparently normal electrocardiograms. The study involved more than 10,500 patients seen in the ERs of 10 U.S. hospitals. Pope, Aufderheide, Ruthazer, et al., *New Engl J Med* 342(16):1163-1170, 2000 (AHRQ grant HS07360).

- *Black women are not as likely as others to receive life-saving therapies for heart attack.*

Most of the 1 million U.S. patients who suffer a heart attack each year are candidates for reperfusion therapy—either thrombolytic (clot-busting) drugs or primary angioplasty. In a study of nearly 27,000 Medicare beneficiaries who met the strict criteria for reperfusion therapy between February 1994 and July 1995, only 44 percent of eligible black women received the treatment, compared with 59 percent of white men, 50 percent of black men, and 56 percent of white women. Canto, Allison, Kiefe, et al., *New Engl J Med* 342(15):1094-1100, 2000 (AHRQ grants HS08843, HS09446).

- *Men and women differ in their reports of angina and symptoms of heart disease.*

Coronary artery disease risk is elevated in certain women with angina, particularly women who have a poor cardiovascular risk profile and symptoms such as shortness of breath. Researchers used the Rose Questionnaire to examine correlates of angina in men and women aged 35 to 55. Nicholson, White, MacFarlane, et al., *J Clin Epidemiol* 52(4):337-346, 1999 (AHRQ grant HS06516).

- *Risk of stroke due to large-vessel atherosclerosis is lower in women than in men.*

In this study of 454 Rochester, MN, residents who had a first ischemic stroke between 1985 and 1989, the risk of stroke due to atherosclerosis with narrowing of the blood vessel was four times greater in men than in women (47 vs. 12 per 100,000 population). This could help to explain why U.S. rates of carotid endarterectomy (surgical opening of a blocked carotid artery) are 30 to 60 percent higher in men than in women. Petty, Brown, Whisnant, et al., *Stroke* 30:2513-2516, 1999 (Stroke Prevention PORT, contract 290-91-0028).

- *Black women are least likely to be referred for cardiac catheterization.*

This study showed that blacks and women, particularly black women, have statistically significant lower odds of being referred for cardiac catheterization than whites and men. The study involved 720 primary care doctors and 8 patient actors (2 each black men, black women, white men, and white women)

who used the same scripts to report the same symptoms, wore identical gowns, used similar hand gestures, and had the same insurance and professions. Schulman, Berlin, Harless, et al., *N Engl J Med* 340:618-626, 1999 (AHRQ grant HS07315).

Breast and Cervical Cancer Screening and Treatment

Approximately 185,000 new cases of breast cancer are diagnosed among U.S. women each year, and nearly 45,000 women die from the disease. Breast cancer is the most common form of malignancy in U.S. women.

The good news is that breast cancer deaths have declined recently among white women in this country; the bad news is that over the same period, survival has decreased among black women. Although between 12 and 29 percent more white women than black women are stricken with breast cancer, black women are 28 percent more likely than white women to die from the disease. The 5-year breast cancer survival rate is 69 percent for black women, compared with 85 percent for white women.

Strengthening preventive programs that promote women's health is critical. For example, early diagnosis and treatment through regular checkups, yearly mammograms for women over age 50, and Pap smears every 1 to 3 years for women over age 18 will greatly increase the odds of surviving breast or cervical cancer.

Research in Progress

- *Examining race, psychosocial factors, and regular mammography use.*

These Yale University researchers are studying psychosocial influences on regular use of screening mammography by women of different races. Lisa Calvocoressi, Principal Investigator (AHRQ grant HS11603).

- *Conference will identify ways patients can use research to inform decisions about breast cancer surgery.*

Attendees at this National Center for Policy Research for Women and Families conference will develop strategies and materials to ensure that all patients with early stage breast cancer have access to research-based information on the range of surgical options available to them. Diana Zuckerman, Principal Investigator (AHRQ grant HS10954).

- *Examining variability in mammography interpretations.*

The goal of this University of Washington project is to determine reasons for variability in the interpretation of mammograms. Three geographically distinct breast cancer surveillance programs in the States of Washington, New Hampshire, and Colorado will collaborate in this study. The researchers will evaluate data on more than 500,000 mammograms from 91 facilities and 279 radiologists. Joann G. Elmore, Principal Investigator (AHRQ grant HS10591).

Recent Findings

- *Outpatient mastectomies have increased over the last decade.*

These researchers reviewed hospital inpatient and outpatient discharge records for all women who were treated for cancer with a breast procedure (lumpectomy, partial mastectomy, or complete mastectomy) between 1990 and 1996 in Colorado, Maryland, New Jersey, and New York and between 1993 and 1996 in Connecticut. They found that two key factors influence whether a woman gets a complete mastectomy in the hospital or in an outpatient setting: the State where she lives and who is paying for it. For example, women in New York were more than twice as likely, and in Colorado nearly nine times as likely, as women in New Jersey to have an outpatient complete mastectomy. Nearly all Medicaid and Medicare enrollees were kept in the hospital after their surgery, as were 89 percent of women enrolled in HMOs. Case, Johantgen, and Steiner, Health Serv Res 36(5):869-884, 2001. Reprints (AHRQ Publication No. 01-R008) are available from AHRQ. (Intramural).*

- *Physicians' preferences help determine treatment for older women with breast cancer.*

Surveyors at the Georgetown University School of Medicine queried a random sample of 1,000 surgeons. Respondents were given three scenarios of older women with localized breast cancer and asked whether they would use breast-conserving surgery (BCS) or mastectomy and whether they would use radiation therapy after BCS. Surgeons' preferences were significantly associated with self-reported practice and treatments, and explained some of the variations in breast cancer treatment patterns among older women. Mandelblatt, Berg, Meropol, et al., Med Care 39(3):228-242, 2001 (AHRQ grant HS08395).

- *AHRQ publishes evidence report on management of breast abnormalities.*

Researchers conducted an extensive literature review and reported findings such as the evidence for performing an excisional biopsy following a stereotactic core needle biopsy, use of tamoxifen therapy, and sentinel lymph node biopsy. They suggest future research should examine breast disease risk factors, breast symptoms, and how these relate to cancer diagnoses. The full evidence report, *Management of Specific Breast Abnormalities*, Evidence Report/Technology Assessment No. 33 (AHRQ Publication No. 01-E046)* and Summary (AHRQ Publication No. 01-E045),* are available from AHRQ (contract 290-97-0016).

- *Cervical smears of previously screened postmenopausal women are poor predictors of cervical abnormalities.*

Researchers collected cervical smears during the Heart and Estrogen/Progestin Replacement Study

of postmenopausal women who still had a uterus and were suffering from coronary artery disease. The researchers identified 2,561 women who had normal cervical smears at study entry and an abnormal smear at the first or second annual visit. Within 2 years of a normal smear, 110 women in the trial had a cytologic abnormality. Of these, all but one were false-positive. Sawaya, Grady, Kerlikowski, et al., *Ann Intern Med* 133(12):942-950, 2000 (AHRQ grant HS07373).

- *Nontraditional programs provide an avenue to reach poor and minority women with mammography services.*

Researchers who studied the Los Angeles Mammography Program (LAMP) found that community-based and other approaches outside of the traditional purview of medicine could be an effective way to deliver mammography information and services to poor and minority women who have limited access to this kind of care. LAMP involved two interventions in 45 churches and generated 3.24 additional screenings among 56 women. Siegel and Clancy, *Health Serv Res* 35(5):905-909, 2000 (Reprints, AHRQ Publication No. 01-R032)* (Intramural).

- *Attitudes of low-income black women about mammography affect appointment-keeping.*

Knowledge of screening recommendations and access to free mammograms were not enough to get some low-income black women to keep their mammography appointments. Most of the women who skipped their appointments said they were embarrassed or believed that a mammogram was unnecessary if they did not have symptoms. Crump, Mayberry, Taylor, et al., *J Nat Med Assoc* 92, pp. 237-246, 2000 (AHRQ grant HS07400).

- *Women over 80 are less likely than other women to receive the full range of treatments for breast cancer.*

This study involved more than 700 women aged 67 and older who were diagnosed with localized breast cancer between 1995 and 1997 and treated at 29 hospitals across the country. Women aged 80 and older were less likely than younger women to be referred to a radiation oncologist or to receive radiation therapy after breast-conserving surgery, placing them at significantly increased risk for recurrence. Mandelblatt, Hadley, Kerner, et al., *Cancer* 89:561-573, 2000 (AHRQ grant HS08395).

- *Obesity may be an unrecognized barrier to breast and cervical cancer screening.*

These researchers analyzed responses to questionnaires completed by 11,435 women. Among women 18 to 75 years of age who had not had a hysterectomy, 78 percent of overweight and obese women compared with 84 percent of normal-weight women reported having a Pap smear in the previous 3 years. Likewise, fewer overweight and obese women than normal weight women had received a mammogram in the previous 2 years. Wee, McCarthy, Davis, et al., *Ann Int Med* 132(9):697-704, 2000 (NRSA fellowship F32 HS00137).

- *More women would be screened for breast and cervical cancer if their doctors recommended it.*

A major reason women cite for not undergoing breast and cervical cancer screening is that their physicians never recommend it. Older women, in particular, are less likely to be screened. This may be due in part to conflicting professional recommendations for screening older women, the many competing causes of mortality as women age, and possible negative attitudes about screening held by doctors and their older female patients. Mandelblatt and Yabroff, *J Am Med Womens Assoc* 55:210-215, 2000 (AHRQ grant HS08395).

- *Breast cancer survivors find meaning in their illness as they adjust to their condition.*

This study involved 24 women who had been diagnosed with breast cancer in the previous 2 years. Many of the women found that as they adjusted to the negative consequences of the disease, they also found positive effects, ranging from a reappraisal of life, increased self-knowledge and change, and reordering of priorities. Taylor, *Oncol Nurs Forum* 27(5):781-788, 2000 (NRSA fellowship F32 HS00078).

- *Cervical cancer screening every 3 to 5 years with the conventional Pap test is effective.*

A recent review of studies that compared conventional and newer Pap tests with a current reference standard found that conventional Pap tests were only moderately accurate and did not achieve concurrently high sensitivity and specificity. Nevertheless, the researchers maintain that serial Pap testing continues to be effective, and that a Pap test every 3 to 5 years will detect abnormalities missed in one screening because cervical cancer is usually a slow-growing disease, and many lesions regress spontaneously. Nanda, McCrory, Myers, et al., *Ann Int Med* 132:810-819, 2000 (contract 290-97-0014).

- *Web site benefits breast and cervical health program.*

The authors describe the development, use, and evaluation of a Web-based patient outreach program in a Seattle community screening facility. They conclude that customized Web-based programs can help public health programs with meager resources facilitate patient outreach. Bush, Wooldridge, Foster, et al., *Oncol Nurs Forum* 26(5):857-865, 1999 (AHRQ grant HS09407).

- *Breast and cervical cancer screening varies by age among black and Hispanic women.*

This study found that elderly black and Hispanic women are screened less frequently for breast and cervical cancer than their younger counterparts. Women 65 years of age and older were 21 percent less likely than younger women to have ever had a Pap smear. Mandelblatt, Gold, and O'Malley, *Prev Med* 28:418-429, 1999 (AHRQ grant HS08395).

- *Physician compassion reduces anxiety in women newly diagnosed with breast cancer.*

Researchers recruited 123 healthy breast cancer survivors and 87 women who had not had cancer; they showed half of each group a standard videotape of two treatment options for metastatic cancer. The remaining women saw an "enhanced compassion" videotape in which the doctor was much more supportive. Anxiety scores were significantly lower for women in the enhanced compassion group. Fogarty, Curbow, Wingard, et al., *J Clin Oncol* 17(1):371-379, 1999 (AHRQ grant HS08449).

- *Poverty is a barrier to appropriate breast cancer care.*

For 24 urban poor and low-income women, the lack of insurance and other circumstances related to poverty created significant delays that compromised the diagnosis, treatment, recovery, and perhaps survival of the women following a diagnosis of breast cancer. *Experiences of Low-Income Women with Breast Cancer, Final Report*, 1999 (NTIS Accession No. PB99-154437),** Anne Kasper, Ph.D., Principal Investigator (AHRQ grant HS09558).

- *New screening technologies for cervical cancer may enhance diagnostic accuracy.*

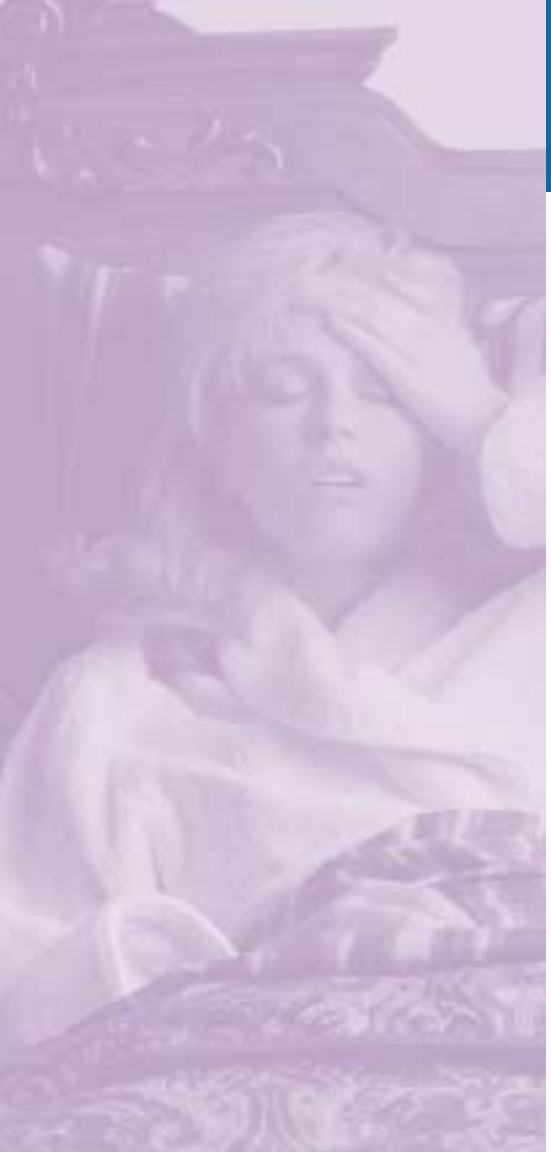
Three new technologies—ThinPrep®, AutoPap®, and PapNet®—may contribute to diagnostic accuracy in the detection of cervical cancer and reduce significantly the likelihood that premalignant and malignant cells will be misdiagnosed as normal. Duke University examined the available scientific evidence on screening for cervical cancer and prepared an evidence report and summary on the topic. They are available from AHRQ: *Evaluation of Cervical Cytology.* Summary (AHRQ Publication No. 99-E009);* Evidence Report (AHRQ Publication No. 99-E010).*

- *Delayed diagnosis and missed appointments decrease breast cancer survival.*

A review of medical records of 246 black and white women diagnosed with breast cancer, stage II or beyond, revealed that nearly four times as many black women as white women missed two or more appointments before diagnosis. After diagnosis, four times as many black women missed two or more appointments as white women, quadrupling their risk of death. Black women went nearly 7 months longer than white women between symptom identification and mastectomy. Howard, Penchansky, and Brown, *Fam Med* 30(3):228-235, 1998 (AHRQ grant HS06217).

- *Women with chronic disease are less likely than other women to receive mammography and Pap tests.*

Researchers reviewed the medical records of 1,764 women aged 43 and over who were followed for about 3 years in two primary care clinics. Results show that chronic stable angina, rheumatoid arthritis, congestive heart failure, and myocardial infarction had a significant negative effect on the likelihood of screening for breast and cervical cancer. Kiefe, Funkhouser, Fouad, et al., *J Gen Intern Med* 13:357-365, 1998 (AHRQ grant HS09446).



Hysterectomy and Alternative Treatments

More than 500,000 hysterectomies are performed in the United States each year at an annual cost of more than $5 billion. By age 60, more than one-third of women in the United States have had a hysterectomy.

The most common reason for hysterectomy for women of any age continues to be fibroid tumors, which in the mid-1990s accounted for about one-third of all hysterectomies (nearly two-thirds for black women). Other reasons for hysterectomy include endometriosis (about 18 percent), uterine prolapse (16 percent), excessive bleeding (5 percent), and other causes (10 percent).

Research in Progress

- *Models discriminate better for medical complications than for surgical complications.*

Researchers examined hospital discharge data to determine the ability of logistic regression models to predict surgical and medical complications after hysterectomy. Results indicate that models for medical complications have better discrimination than those for surgical complications. *Risk Adjustment Methods for Hysterectomy Complications, Final Report* (NTIS Accession No. PB-2001-101763),** Evan Myers, Principal Investigator (AHRQ grant HS09760).

- *Assessing the effectiveness of various treatments for noncancerous uterine conditions.*

These 5-year cooperative agreements are focusing on the effectiveness of different treatments, such as medication and endometrial ablation, for noncancerous uterine conditions. The studies are being conducted at the University of Maryland, Kay Dickersin, Principal Investigator (AHRQ grant HS09506); and the University of California at San Francisco, Stephen Hulley, Principal Investigator (AHRQ grant HS09478).

Recent Findings

- *Most patients are satisfied with the results of hysterectomy.*

University of Maryland researchers interviewed 1,300 women before hysterectomy and 3, 6, 12, and 24 months after surgery. At 1 and 2 years after surgery, 96 percent of the women said the hysterectomy had completely or mostly resolved the problems or symptoms they experienced before the surgery; 93 and 94 percent respectively said the results of the operation were better than or about what they expected; and 82 to 85 percent said their health was better than before the hysterectomy. Kjerulff, Rhodes, Langenberg, et al., *Am J Obstet Gynecol* 183:1440-1447, 2000 (AHRQ grant HS06865).

- *Hysterectomy is often recommended for indications that do not meet established criteria.*

In this study of enrollees in nine managed care organizations in Southern California, nearly three-fourths of hysterectomies performed from 1993 to 1995 on 497 women did not meet the level of care recommended by an expert panel. Also, 76 percent of women who underwent hysterectomy for endometriosis, chronic pelvic pain, or abnormal bleeding did not meet criteria established by the American College of Obstetricians and Gynecologists. Broder, Kanouse, Mittman, et al., *Ob Gyn* 95(2):199-205, 2000 (AHRQ grant HS07095).

- *Benefits of hysterectomy are substantial for some women.*

Hysterectomy can result in considerable improvements in physical functioning and quality of life for some women who suffer multiple and severe symptoms associated with gynecologic disorders, such as uterine fibroids, abnormal uterine bleeding, and endometriosis. This study involved 1,299 women who had hysterectomies for noncancerous conditions at 28 Maryland hospitals. Kjerulff, Langenberg, Rhodes, et al., *Ob Gyn* 95:319-326, 2000 (AHRQ grant HS06865).

- *Sexual functioning improves for many women who undergo hysterectomies.*

In this 2-year study of more than 1,100 Maryland women 35-49 years of age who had undergone hysterectomy, significant improvements were found in libido and frequency of sexual relations, enjoyment, orgasm frequency, and relief from painful intercourse. Rhodes, Kjerulff, and Langenberg, *JAMA* 282:1934-1941, 1999 (AHRQ grant HS06865).

- *Practice patterns for hysterectomy changed during the early 1990s.*

The national rate of total abdominal hysterectomies decreased from 25.7 per 10,000 women in 1991 to 20.5 in 1994. At the same time, the national rate of supracervical hysterectomies (cervix retained) increased from 0.16 in 1991 to 0.41 in 1994. Findings are based on inpatient discharge data from AHRQ's Healthcare Cost and Utilization Project, National Inpatient Sample. Sills, Saini, Steiner, et al., *Int J Gynaecol Obstet* 63:227-283, 1998. (Reprints, AHRQ Publication No. 99-R053).* (Intramural)

- *Consumer brochure describes treatments for conditions that can lead to hysterectomy.*

The brochure *Common Uterine Conditions: Options for Treatment* is intended to supplement a woman's discussion with her physician about noncancerous uterine conditions, such as fibroids and endometriosis, that can lead to hysterectomy. (AHRQ Publication No. 98-0003)*

Urinary Incontinence

Urinary incontinence (UI) affects 10-35 percent of all adults in the United States and about half of all nursing home residents. Women are much more likely than men to be affected, particularly older women who have borne children. However, younger women who have never had children also can be affected, especially during physical activity. UI is generally regarded as one of the major causes of nursing home admission among the elderly.

Despite the significant burden associated with UI, those affected often do not consult a physician about their condition. The reasons for this include embarrassment, the ready availability of absorbent products, low expectations about treatment, and lack of information about UI and treatment options.

Research in Progress

- *Studying biofeedback and UI in older women.*

This pilot study at the Bowman-Gray School of Medicine in Winston-Salem, NC, will lay the groundwork for a larger clinical trial of the effectiveness of biofeedback in treating UI in women 50-65 years of age. Elizabeth Dugan, Principal Investigator (AHRQ grant HS10663).

- *Testing a model for use of a UI guideline in U.S. nursing homes.*

This study at the University of Rochester in New York will test the effectiveness of a new model of care to translate AHRQ's UI guideline into practice in 10 nursing homes. Nancy Watson, Principal Investigator (AHRQ grant HS11064).

Recent Findings

- *Asking the right questions helps physicians identify and treat UI.*

A telephone survey of 384 incontinent women revealed that asking women if they are bothered by incontinence and, if so, about their voiding and leaking patterns enables physicians to identify and treat affected women without using lengthy and time-consuming questionnaires. Robinson, Pearce, Preisser, et al., *Ob Gyn* 91(2):224-228, 1998 (AHRQ grant HS08716).

Reproductive Health

One of the many health conditions that can affect women during their reproductive years is pelvic inflammatory disease (PID). PID is an acute infection of the upper reproductive tract, which includes the uterus, ovaries, and fallopian tubes.

PID affects more than 1 million U.S. women each year and frequently results in infertility, ectopic pregnancy, and chronic pelvic pain. Between 10 and 15 percent of U.S. women ages 15 to 44 have had an episode of PID, which usually results from an untreated sexually transmitted disease. Annual estimated costs associated with PID and its consequences exceed $4 billion.

Recent Findings

- *Researchers evaluate use of clinical predictors of endometritis in women with symptoms of PID.*

Adnexal tenderness (tenderness of the ovaries and/or fallopian tubes) identifies over 95 percent of women with PID, but only 83 percent are identified by the minimum criteria for diagnosing PID suggested by the Centers of Disease Control and Prevention. These and other findings are based on the characteristics of 651 women enrolled in a multicenter randomized treatment trial for PID, clinical and laboratory findings, endometrial sampling, and calculated sensitivity and specificity of clinical criteria. Peipert, Ness, Blume, et al., *Am J Obstet Gynecol* 184:856-864, 2001 (AHRQ HS08358).

- *Incidence and management of uterine fibroids differ tremendously among racial groups.*

Based on a review of the evidence on treatment of uterine fibroids, researchers at the Duke University Evidence-based Practice Center found that black women have a higher incidence of fibroids, larger and more numerous fibroids when first diagnosed, and a higher rate of hysterectomies than other women. The full report, *Management of Uterine Fibroids* (AHRQ Publication No. 01-E052)* and summary (AHRQ Publication No. 01-E051)** are available from AHRQ (contract 290-97-0014).

- *Current tests for diagnosis of PID cannot distinguish it from other causes of pelvic pain.*

Clinicians should suspect causes other than PID in cases where women have pelvic pain and tenderness but not white blood cells or mucopus in the vaginal discharge, according to this study of 157 patients enrolled in the PID Evaluation and Clinical Health (PEACH) study. PEACH is the largest randomized, multicenter study of therapy for PID ever conducted in North America. Peipert, Ness, Soper, et al., Infect *Dis Ob Gyn* 8:83-87, 2000 (AHRQ grant HS08358)

Health Care Access and Quality

The many changes taking place in health care delivery in the United States have serious implications for women's health. These changes include a consolidation of the health care system, a shift to managed care, and decreased public funding of health care and health-related programs. These changes mean woman need more information than ever before to help them make informed health care choices for themselves and their families.

Research in Progress

- *Determining the impact of citizenship on access to Pap smears.*

Researchers at the University of California, Los Angeles, will examine use of preventive services by immigrant Hispanic women living in Los Angeles County to determine whether citizenship plays a significant role in access to health care. Judith R. Katzburg, Principal Investigator (AHRQ grant HS11273).

- *Examining former welfare recipients' ability to access care.*

This study will examine the effects of welfare reform on access to health insurance in the State of Oregon. Researchers at Portland State University also will address the use of health services among former Temporary Assistance for Needy Families Program recipients and their children. Karen Seccombe, Principal Investigator (AHRQ grant HS11322).

- *Assessing the role of Managed Care in use of health services.*

Investigators at Indiana University, Bloomington, will use 1996 Medical Expenditure Panel Survey (MEPS) data to analyze health care use among a subsample of nonelderly adults who have private health insurance. For women, measures will include preventive care services such as Pap smears, breast exams, and mammograms and the number of patient visits to various types of providers. Pravin Trivedi, Principal Investigator (AHRQ grant HS10904).

- *Addressing best practices in Medicaid managed care.*

Tufts Managed Care Institute in Boston will host a conference for clinicians and faculty at academic health centers and affiliated sites serving large numbers of women, children, elderly, and disabled Medicaid beneficiaries. They will address best practices and innovations in serving Medicaid patients, ongoing research and findings, and basic principles and practices in managed care. Rosalie Phillips, Principal Investigator (AHRQ grant HS10969).

- *Measuring women's satisfaction with primary care.*

These University of Michigan researchers will assess satisfaction with primary care and analyze the factors that contribute to satisfaction among a racially and geographically diverse sample of women age 15 and older. Carol S. Weisman, Principal Investigator (AHRQ grant HS10237).

Recent Findings

- *Accessible ob-gyn services are needed for homeless women.*

When nearly 1,000 Los Angeles County homeless women of reproductive age were interviewed, two-thirds reported symptoms during the previous year ranging from abnormal vaginal discharge, severe pelvic pain, and skipped periods to breast lumps and burning during urination. One-fourth of the women were either pregnant at the time of the study or had been pregnant during the preceding year. Wenzel, Andersen, Gifford, et al., *J Health Care Poor Underserved* 12(3):323-343, 2001 (AHRQ grant HS08323).

- *Researchers examine the role of ob-gyns as primary care providers for elderly women.*

Using Medicare claims data, researchers examined the degree to which ob-gyns in the State of Washington offered primary care to elderly women in 1994. About 12 percent of visits by elderly women to ob-gyns had nongynecologic diagnoses. Further, patients who saw ob-gyns received over 15 percent of their overall health care from an ob-gyn compared with 43 percent of total health care received by elderly women who saw family physicians. Fink, Baldwin, Lawson, et al., *J Fam Pract* 50(2):153-158, 2001 (contract 290-93-0136).

- *Study identifies risk factors for late or no prenatal care for low-income women.*

This study found that despite the expansion of California's Medicaid program, low-income women are more likely than other women to have late or no prenatal care. A representative survey of 6,364 low-income women revealed that women in absolute poverty were nearly nine times as likely to get no care as women with incomes between 101-200 percent of the Federal poverty level, and women who had more than one child, were not married, and whose pregnancies were unplanned were three times more likely than their counterparts to have no prenatal care. Nothnagle, Marchi, Egerter, et al., *Maternal Child Health J* 4(4):251-259, 2000 (AHRQ grant HS07910).

- *Women use more health care services than men, and their costs are higher.*

Although women and men have similar hospitalization rates and costs, women use more primary care services and have higher overall medical charges than men. In this study of 509 adult patients assigned to primary care physicians at a university medical center, women reported significantly lower mental and physical health status than men. The researchers suggest that primary care physicians may be more likely to order laboratory tests, x-rays, and other diagnostic tests for women who make more frequent visits to the doctor and often have continuing complaints. Bertakis, Azari, Helms, et al., *J Fam Practice* 49(2):147-152,2000 (AHRQ grant HS06167).

- *More targeted efforts are needed to improve women's health care.*

According to this researcher, future efforts to improve women's health care should focus on three areas: coordination of care, interaction with the health care system, and the relationship between socioeconomic status and health. Clancy, *Women and Health*, edited by Goldman and Hatch, New York: Academic Press, 1999, pp. 50-54. (Reprints, AHRQ Publication No. 00-R010).* (Intramural)

- *Women prefer to see an ob gyn for routine gynecological care.*

A survey of 5,164 women enrolled in a health maintenance organization (HMO) revealed that 60 percent of them preferred a gynecologist for basic gynecology care, 13 percent preferred a nurse practitioner, 13 percent preferred their primary care physician, and 14 percent had no preference. Schmittdiel, Selby, Grumbach, et al., *J Womens Health* 8(6):825-833, 1999 (AHRQ grant HS08269).

- *Assessments of hospital maternity care can guide pregnant women.*

Despite differences in demographic and clinical characteristics, women generally agree on which hospitals provide quality maternity care. Their assessments may be a valid indicator of hospital quality of care in this area. Finkelstein, Harper, and Rosenthal, *Health Serv Res* 34(2):623-640, 1999 (AHRQ grant HS00059).

- *U.S. female physicians assess the quality of the health care they receive.*

A nationally representative sample of 4,501 U.S. women physicians rated the health care they received as excellent (39 percent); very good (37 percent); good (19 percent); fair (4 percent); and poor (1 percent). Franks and Clancy, *J Womens Health* 8(1):1-8, 1999 (Reprints, AHRQ Publication No. 99-R048).* (Intramural)

- *Changes in health care delivery and financing are needed for older women.*

Managed care organizations may not be able to meet the needs of the large numbers of chronically ill and elderly women being enrolled. The researchers note that medical practices need to be reorganized and reimbursement mechanisms made sufficient and flexible enough to allow physicians more time for patient education, counseling, and case management. Bierman and Clancy, *Women's Health Issues* 9(1):2-17, 1999 (AHRQ Publication No. 99- R052)* (Intramural).

- *Feelings about length of hospital maternity stay affect women's satisfaction with care.*

A postdischarge survey of 15,000 women admitted for labor and delivery found that satisfaction was higher for patients who felt that their stay was just right and lower among those who felt it was too short or too long. Finkelstein, Harper, and Rosenthal, *Am J Managed Care* 4(12):1701-1708, 1998 (NRSA training grant T32 HS00059).

Domestic Violence

An estimated 4 million women are physically abused by their partners each year, and about one of every four women seeking care in emergency rooms has injuries resulting from domestic violence. There are many consequences of domestic violence, as

reflected in the high use of health care services by abused women. In addition to physical injuries, women who are victims of domestic violence experience higher rates of depression, substance abuse, suicidal thoughts, and suicide attempts.

Research in Progress

- *Researchers seek ways to improve screening and management for victims of domestic violence.*

The purpose of this Highland Hospital of Rochester, NY, study is to evaluate the impact of a multifaceted intervention designed to improve primary care physicians' screening and management of domestic violence. Naomi Pless, Principal Investigator (AHRQ grant HS11490).

- *Conference will focus on health care for victims of domestic violence.*

Parkland Hospital Foundation in Dallas, TX, will convene its First National Conference on Medical Care and Domestic Violence. This conference will bring together physicians, nurses, other health providers, and advocates to identify research and training strategies that will improve the quality of health care services provided to victims of domestic violence. Ellen Taliaferro, Principal Investigator (AHRQ grant HS11837).

- *Continuing a pilot study on domestic violence.*

This Georgetown University project is testing the validity and reliability of the Domestic Violence Survivor Assessment tool, identifying preferences for clinician interventions with domestic violence victims and seeking consensus among multidisciplinary clinicians. Jacqueline S. Dienemann, Principal Investigator (AHRQ grant HS10731).

HIV/AIDS

The number of AIDS cases is growing more rapidly among U.S. women than among men. In 1985, women made up only 7 percent of all reported AIDS cases, compared with 18 percent in 1994 and 23 percent in 1999. AIDS occurs most often among women in their reproductive years (15 to 44 years of age). HIV/AIDS is the sixth leading cause of death among U.S. women 25 to 34 years of age and the leading cause of death for black women in that age group.

Recent Findings

- *Women's HIV study identifies prevalence and predictors of skin disease.*

The Women's Interagency HIV Study analyzed baseline data on 2,018 HIV-infected women and 557 uninfected women. Results revealed HIV-infected women were more likely than uninfected women to report skin abnormalities (63 vs. 44 percent) and diagnoses with more than two skin problems (6 vs. 2 percent). Paradi, Mirmirani, Hessol, et al., *J Am Acad Dermatol* 44:785-788, 2001 (sponsored by AHRQ, NIH, and CDC).

- *All HIV-infected women should be screened for cervical cancer.*

Researchers developed a model that simulates cervical cancer screening, diagnosis, and treatment in hypothetical groups of HIV-infected women. They recommend that all HIV-infected women have two Pap smears 6 months apart to screen for cervical cancer and annual Pap smears thereafter when initial Pap results are normal. Goldie, Weinstein, and Freedberg, *Ann Intern Med* 130:97-107, 1999 (AHRQ grant HS07317 and NRSA training grant T32 HS00020).

- *Antibiotic treatment of chorioamnionitis may reduce perinatal HIV transmission.*

Preterm birth, chorioamnionitis, and prolonged rupture of membranes seem to be the strongest and most consistent obstetric risk factors for maternal-fetal HIV transmission. Investigators theorize that metronidazole alone or combined with other antibiotics could reduce

perinatal HIV transmission. Goldenberg, Vermund, Goepfert, et al., *Lancet* 352:1927-1930, 1998 (Low Birthweight PORT contract 290-92-0055).

- *Women with AIDS are more likely to survive when treated at clinics experienced in caring for people with HIV.*

A study of 887 women diagnosed with AIDS between 1989 and 1992 and treated at 117 New York State clinics found that 71 percent of those treated in high-experience clinics were alive 21 months after AIDS diagnosis compared with 53 percent of women seen in low-experience clinics. Laine, Markson, McKee, et al., *AIDS* 12(4):417-424, 1998 (AHRQ grant HS06465).

- *Study compares profiles of HIV-seropositive and high-risk seronegative women.*

The Women's Interagency HIV Study profiled the HIV risk factors and other characteristics of 2,058 HIV-seropositive women and compared them with 567 high-risk seronegative women. The HIV-positive group had higher rates of health insurance coverage (82 vs. 59 percent) and a current primary health care provider (52 vs. 47 percent); reported barriers to receiving health care (52 vs. 47 percent); provided care for dependent children (42 vs. 41 percent); and reported forced sexual contact as a child (31 vs. 27 percent). Barkan, Melnick, Preston-Martin, et al., *Epidemiol* 9(2):117-125, 1998 (sponsored by AHRQ, NIH, and CDC).

Clinical Preventive Services

In addition to supporting research on preventive services, AHRQ convened a panel of independent, private-sector experts in prevention and primary care—the U.S. Preventive Services Task Force (USPSTF)—and conducted a program to increase the appropriate use of preventive services—Put Prevention Into Practice. The USPSTF reviews the scientific evidence and develops recommendations for interventions such as screening tests, counseling, immunizations, and chemoprophylactic regimens. Many of these preventive interventions are of particular importance to women.

Research in Progress

- *Updating USPSTF recommendations pertaining to women.*

The USPSTF is updating its recommendations from the 1996 *Guide to Clinical Preventive Services*, 2nd Edition. Current topics that are specifically relevant to women include prevention of unintended pregnancy and postmenopausal hormone replacement therapy, as well as chemoprevention for breast cancer. USPSTF recommendations and related materials are available on the AHRQ Web site at www.ahrq.gov/clinic/prevenix.htm.

- *Evaluating home screening for STDs.*

Researchers at the University of Pittsburgh are evaluating the effectiveness of home screening for two sexually transmitted diseases (STDs)—chlamydia and gonorrhea—compared with office-based screening among women aged 14-29 previously diagnosed with chlamydia during treatment at one of six clinics in Pennsylvania and South Carolina. Roberta Ness, Principal Investigator (AHRQ grant HS10592).

- *Improving screening for STDs in teens.*

Researchers from the University of California, San Francisco, will test ways to improve screening for STDs among asymptomatic, sexually active teens being seen in Kaiser Permanente outpatient clinics. Mary-Ann Shafer, Principal Investigator (AHRQ grant HS10537).

Recent Findings

- *Sexually active women 25 and younger should be screened routinely for chlamydia.*

According to the third USPSTF, primary care clinicians should screen all sexually active women ages 25 and younger for chlamydia. The USPSTF acknowledges that risk is also high in some groups of women over 25 and states the best way to identify who is at risk will vary in different communities. *What's New from the Third USPSTF: Screening for Chlamydial Infection* (AHRQ Publication No. APPIP01-0010).*

- *The evidence is not clear on screening pregnant women for bacterial vaginosis.*

The third USPSTF states that more research is needed to determine the effectiveness of screening pregnant women for bacterial vaginosis. Furthermore, more research is needed to determine which women might be most likely to benefit from bacterial vaginosis treatment and which screening tests and treatments might be most effective. *What's New from the Third USPSTF: Screening for Bacterial Vaginosis in Pregnancy* (AHRQ Publication No. APPIP01-0012).*

- *Chlamydia screening rates vary considerably among health plans.*

Investigators at the University of California, Los Angeles studied chlamydia screening rates of 19,214 sexually active females aged 15 to 25. Subjects were enrolled in one of four major U.S. health plans and visited a health care provider during 1997. Study results show considerable variation among the plans (2 to 42 percent), and performance was generally low. Mangione-Smith, McGlynn, and Hiatt, *Arch Pediatr Adolesc Med*, 154:1108-1113, 2000 (AHRQ grant HS09473).

- *Chlamydia screening of young women appears to be cost effective.*

Routine chlamydia screening of sexually active women 15 to 25 years of age has health benefits, and it is cost effective, according to this study. Chlamydia is a bacterial infection that increases a woman's risk for developing pelvic inflammatory disease (PID), tubal factor infertility, chronic pelvic pain, ectopic pregnancy, and HIV infection. Screening these women for chlamydia could be expected to prevent more than

140,000 cases of PID each year and save $45 for every woman screened. Mangione-Smith, O'Leary, and McGlynn, *Sex Transm Dis* 26:309-316, 1999 (AHRQ grant HS09473).

Pregnancy, Birth Outcomes, and Family Planning

The last half of the 20th century has seen a decline in maternal deaths among U.S. women—from about 74 deaths to about 7 deaths for every 100,000 live births in 1950 and 1993, respectively. Mortality related to pregnancy and childbirth is low for U.S. women compared with other causes of death, primarily because of health care advances that have occurred over the past 50 years. However, black women and older women continue to be at higher risk of death from complications of pregnancy.

Research in Progress

- *Investigating postnatal and postpartum care programs.*

This study, which is underway at Battelle Memorial Institute in Seattle, WA, is investigating new mothers' use of postdischarge services—including factors that influence decisions about use—and determining the impact of specific postdischarge services on patterns of medical care use, health status, and breastfeeding. Jutta Joesch, Principal Investigator (AHRQ grant HS10138).

- *Aiding shared decisionmaking about childbirth.*

The objective of this study is to develop and pilot test an evidence-based online tool to aid in shared decisionmaking about method of childbirth. The research is underway at Oregon Health & Science University. Jeanne-Marie Guise, Principal Investigator (AHRQ grant HS11338).

- *Evaluating a decision tool for prenatal testing.*

These researchers from the University of California, San Francisco, are evaluating a computerized tool that helps pregnant women and their partners make choices about prenatal diagnostic testing. This is a randomized controlled trial in a racially diverse group of 400 women age 35 and older. Miriam Kuppermann, Principal Investigator (AHRQ grant HS10214).

- *Determining the feasibility of acupuncture to treat depression during pregnancy.*

The goal of this pilot study underway at the University of Arizona, Tucson, is to determine the feasibility of a large-scale clinical trial of the efficacy and effectiveness of acupuncture as a treatment for depression during pregnancy. Rachel Manber, Principal Investigator (AHRQ grant HS09988).

- *Identifying the trends and factors responsible for cesarean section rates.*

The overall c-section rate rose rapidly in the United States in the 1960s, 1970s, and most of the 1980s, leveled off in the late 1980s, and began a slow decline that continues today. The rate (20.8 percent in 1995) is still regarded by many authorities as too high. In this study, Syracuse University researchers are attempting to identify the factors that influence c-section rates. A. Dale Tussing, Principal Investigator (AHRQ grant HS10065).

- *Evaluating outcomes of legislated increases in maternity stays.*

Researchers at Harvard Pilgrim Healthcare are evaluating the effects of two policy changes on the costs, quality, and outcomes of care for hospital delivery services. The first is a large HMO internal program aimed at reducing hospital stays for childbirth. The second is State legislation mandating coverage for a minimum 48-hour hospital stay after normal delivery. Stephen B. Soumerai, Principal Investigator (AHRQ grant HS10060).

- *Improving the use of health care services by homeless women.*

This study is looking at ways to improve use of health care services—including contraceptives, family planning, and gynecological and prenatal health care—by homeless women. Lillian Gelberg, M.D., Principal Investigator (AHRQ grant HS08323).

Recent Findings

- *Chronic hypertension associated with an 11-fold increase in risk of preeclampsia during pregnancy.*

The researchers used hospital discharge records for 1988-1996 involving 38,402 black and 144,285 white pregnant women who gave birth in the hospital. Irrespective of race, the risk of preeclampsia was greater among younger women (aged 15 to19) than older women (aged 20-39) and among single women compared with married women. Diabetes and urinary tract infection increased the risk of preeclampsia. Both black and white women with chronic hypertension had an 11-fold higher risk of developing preeclampsia during pregnancy. Samadi, Mayberry, and Reed, *Ethnicity Dis* 11:192-200, 2001 (AHRQ grant HS07400).

- *Maternal fever during labor is strongly associated with infection-related neonatal and infant death.*

Maternal fever during labor usually signals inflammation of the fetal membranes due to infection. In this study of birth records for more than 11 million single live births between 1995 and 1997, intrapartum fever tripled the risk of early neonatal death and doubled the risk of infant death for term infants. It was associated with meconium aspiration syndrome, hyaline membrane disease that causes respiratory distress, neonatal seizures, and newborn need for assisted ventilation among both term and preterm infants. Petrova, Demissie, Rhoads, et al., *Ob Gyn* 98:20-27, 2001 (AHRQ grant HS07400).

- *Risk of uterine rupture during labor is higher for women with a prior cesarean delivery.*

Researchers analyzed the records of more than 20,000 women who had their first child delivered by c-section and delivered a second child either by cesarean or following labor. Results show that 91 women had a uterine rupture during the second birth. When compared with women who had repeat c-sections without labor, uterine rupture was 15 times more likely with prostaglandin induction of labor and 5 times more likely when labor was induced without prostaglandin. Lydon-Rochelle, Holt, Easterling, et al., *N Engl J Med* 345(1):3-8, 2001 (NRSA training grant T32 HS00034).

- *Expanded Medicaid programs decreased the rate of repeat c-sections during the 1990s.*

As more Ohio women became enrolled in Medicaid managed care programs versus fee-for-service programs from 1992 to 1997, the overall rate of repeat c-sections declined, say researchers at Case Western Reserve University. Based on an analysis of Ohio birth records and Medicaid files, study findings also show that the rate of first-time c-sections remained about the same for both groups. Koroukian, Bush, Rimm, *m J Managed Care* 7:134-142, 2001 (NRSA training grant T32 HS00059).

- *Pregnancy-related deaths are more common following c-section than vaginal birth.*

University of Washington researchers explored the association between method of delivery and maternal death and found that women who had c-sections were four times as likely to die a pregnancy-related death as women who had vaginal deliveries. However, the researchers note that cesarean delivery may be a marker for serious preexisting maternal problems and not a risk factor for death. Lydon-Rochelle, Holt, Easterling, et al., *Ob Gyn* 97(2):169-174, 2001 (NRSA training grant T32 HS00034).

- *Augmented prenatal care does not reduce low birthweight in poor black women.*

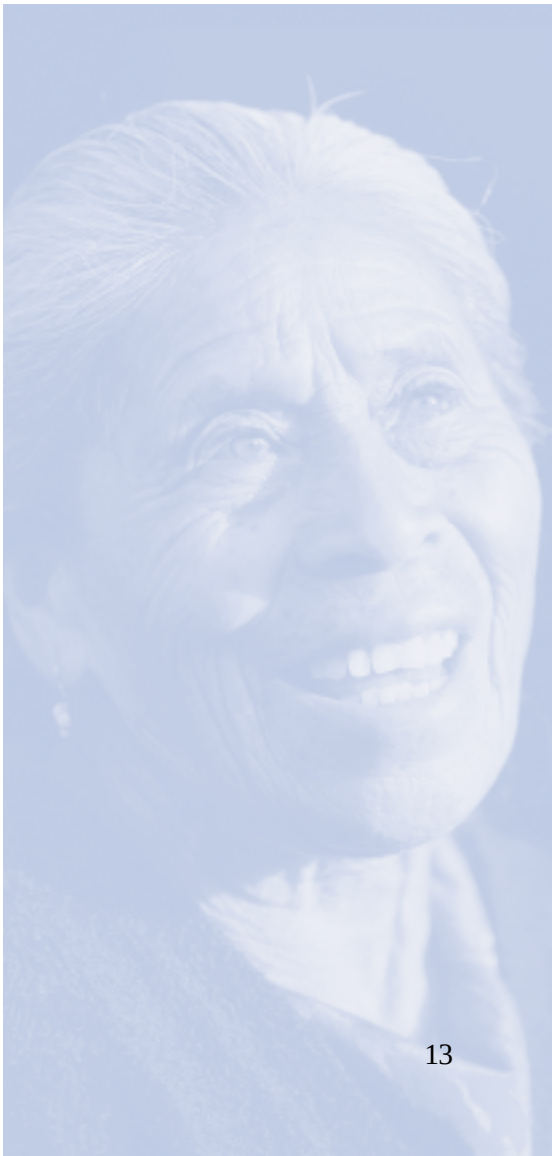
Researchers at the University of Alabama at Birmingham assigned 318 Medicaid-eligible pregnant black women to augmented prenatal care and 301 similar women to usual care. Augmented care included education-oriented peer groups, extra appointments, extended time with clinicians, other supports, and risk-reduction programs. Augmented care improved knowledge about pregnancy risk, social support, care satisfaction, and a sense of control; however, it did not reduce low birthweight. Klerman, Ramey, Goldenberg, et al., *Am J Public Health*, 91:105-111, 2001 (Low Birthweight PORT contract 290-92-0055).

- *Poor birth outcomes among homeless women are more likely for women of color.*

Interviews of 237 homeless women aged 15 through 44 years who had given birth within the previous 3 years revealed the following: almost 17 percent had low birthweight (LBW) babies, and 19 percent had preterm births, compared with the national average of 6 percent and 10 percent, respectively. About 22 percent of black and 16 percent of Hispanic homeless women had LBW babies compared with 5.4 percent of homeless white women. Also, 21 percent of black and 14 percent of Hispanic homeless women had preterm births compared with 7.8 percent of homeless white women. Stein, Lu, and Gelberg, *Health Psychol* 19(6):524-534, 2000 (AHRQ grant HS08323).

- *Death of a mother or sister during pregnancy shortens pregnancies among poor black women.*

Medical University of South Carolina investigators interviewed 472 black women from 3 public prenatal clinics (regarding stressful life events, availability of emotional support, and health habits) and collected pregnancy



and birth data from a clinical database. Women who lost a mother or sister during pregnancy delivered their babies on average 4.6 weeks earlier than other women in the study. Women who experienced the death of other family members or close friends did not have shorter pregnancies. Barbosa, *J Perinatol* 20:438-442, 2000 (AHRQ grant HS06930).

- *C-section or assisted delivery increases the risk for rehospitalization.*

Women who had uncomplicated spontaneous vaginal deliveries were compared with women who underwent c-section or assisted delivery (forceps or vacuum extraction) in a Washington State hospital for the birth of their first child. The latter were more likely to be readmitted to the hospital, particularly for infections, within 2 months after childbirth. Lydon-Rochelle, Holt, Martin, et al., *JAMA* 283(18):2411-2416, 2000 (NRSA training grant T32 HS00034).

- *Lack of insurance is not the only barrier to timely prenatal care for low-income women.*

In addition to lack of insurance, this study identified other barriers to timely prenatal care for low-income women, including unwanted or unplanned pregnancy, no regular provider before pregnancy, and less than a high school education. The study involved more than 3,000 low-income women in California who were covered either by private insurance or Medi-Cal throughout their pregnancies. Braveman, Marchi, Egerter, et al., *Ob Gyn* 95:874-880, 2000 (AHRQ grant HS07910).

- *Waiting longer between pregnancies decreases the risk of premature birth.*

Women who have interpregnancy intervals from 18 to 59 months have the lowest risk of delivering premature infants, according to this analysis of data on nearly 290,000 single infants born in early 1991 to Mexican-American and non-Hispanic white women who lived in the same county. Fuentes-Afflick and Hessol, *Ob Gyn* 95(3):383-390, 2000 (AHRQ grant HS07373).

- *Evidence suggests caution in treating hypertension in pregnant women.*

This review of the scientific evidence on management of chronic hypertension during pregnancy was conducted by the AHRQ-funded Evidence-based Practice Center (EPC) at the University of Texas Health Science Center. It focuses on 10 specific questions concerning the diagnosis and treatment decisions faced by clinicians who provide care for pregnant women with mild to moderate hypertension. Copies of the report summary (AHRQ Publication No. 00-E010) and full report, *Management of Chronic Hypertension During Pregnancy* (AHRQ Publication No. 00-E011) are available from AHRQ* (contract 290-97-0012).

- *Thousands of c-sections a year are performed too early.*

This study of 733 women who delivered full-term, nonbreech infants by unplanned c-section found that nearly one-fourth of those done for failure to progress were done too early in labor according to recommendations by the American College of Obstetricians and Gynecologists. Gifford, Morton, Fiske, et al., *Ob Gyn* 95:589-595, 2000 (Management and Outcomes of Childbirth PORT, contract 290-90-0039).

- *Zinc blood levels during pregnancy do not affect outcomes.*

This is the largest study to date of the impact of zinc deficiency during pregnancy. Researchers found no relationship between blood zinc levels and pregnancy outcomes. They measured zinc concentrations in plasma samples at a mean of 16 weeks gestation in nearly 3,500 women attending a public health clinic for prenatal care. Tamura, Goldenberg, Johnston, et al., *Am J Clin Nutr* 71:109-113, 2000 (Low Birthweight PORT contract 290-93-0055).

- *Substantial health and economic benefits accrue when pregnant women stop smoking.*

Excess direct medical costs for each pregnant smoker in 1995 were $511 per live birth, and the total cost was $263 million. According to this study, reducing smoking prevalence among pregnant women by just 1 percentage point would prevent low birthweight in 1,300 live births and save $21 million in direct medical costs in the first year. Lightwood, Phibbs, and Glantz, *Pediatr* 104:1312-1320, 1999 (Low Birthweight PORT contract 290-92-0055).

- *Vaginal delivery after prior c-section continues to be relatively safe.*

The risk of uterine rupture is low enough (.5 percent) that vaginal birth after cesarean is a relatively safe procedure. The researchers used California hospital discharge data for more than 500,000 women delivering babies in the State in 1995 and found that the overall cesarean rate was 21 percent; 12.5 percent of the women had a history of one or more c-sections. The uterine rupture rate was .07 percent for all deliveries and .43 percent for women who attempted vaginal birth after a previous c-section. Gregory, Korst, Cane, et al., *Ob Gyn* 94:985-989, 1999 (Childbirth PORT contract 290-90-0039).

- *Two tests reduce the need for coagulation testing of hypertensive pregnant women.*

Doctors often use several blood coagulation tests to diagnose pre-eclampsia in pregnant women with hypertension. However, a blood platelet count plus a lactate dehydrogenase test can predict coagulation abnormalities in pregnant women with hypertension, according to researchers. Barron, Heckerling, Hibbard, et al., *Ob Gyn* 94(3):364-370, 1999 (AHRQ grant HS08131).

- *Blaming HMOs for "drive-through deliveries" is not entirely justified.*

Hospital patient discharge data (1990-1994) were reviewed to examine differences in length of stay for normal, uncomplicated deliveries between patients in HMOs and those not in HMOs. By 1994, cost-cutting mechanisms and denial of service coverage by different insurers were probably more similar than different. The trend toward shorter stays for uncomplicated deliveries suggests that HMOs may have been unjustly blamed. Volpp and Bundorf, *Inquiry* 36:101-109, 1999 (AHRQ grant HS09325).

- *Private nonteaching hospitals have high cesarean rates for Medicaid-insured women.*

In a California county during 1991, Medicaid-insured women who gave birth in private nonteaching hospitals had an overall c-section delivery rate of 24.5 percent, compared with 9 percent for similar women who delivered at public hospitals. Gregory, Ramicone, Chan, et al., *Am J Ob Gyn* 180:1177-1184, 1999 (Childbirth PORT contract 290-92-0039).

- *Cocaine and tobacco use increases the risk of miscarriage.*

Investigators examined the association between cocaine and tobacco use and miscarriage in a group of 970 predominantly poor and black pregnant adolescents and women. Among those who had miscarriages, 29 percent used cocaine and 35 percent smoked. Of those who did not have miscarriages, 21 percent used cocaine and 22 percent smoked. Ness, Grisso, Hirschinger, et al., *N Engl J Med* 340(5):333-339, 1999 (AHRQ grant HS08358).

- *Women's preferences should guide decisions about prenatal testing.*

The original reasons for age- or risk-related cutpoints for prenatal diagnosis are no longer relevant, according to these authors. They discuss the rationale for the traditional thresholds and recommend replacing them with the preferences of well-informed women. Kuppermann, Goldberg, Nease, et al., *Am J Public Health* 89(2):160-163, 1999 (AHRQ grant HS07373).

- *Intervention leads to increase in use of corticosteroids in women at high risk for preterm birth.*

Researchers found a 33 percent increase in use of corticosteroids in women at high risk for delivery of a preterm baby following a five-step intervention with physicians: endorsement by local medical opinion leaders, lectures on the topic, reminders in medical charts, regular discussions with doctors on preterm scenarios, and ongoing feedback on their use of corticosteroids. Leviton, Goldenberg, Baker, et al., *JAMA* 281(1):46-52, 1999 (Low Birthweight PORT contract 290-92-0055).

- *Nurse-midwife/obstetrician collaboration and delivery deemed safe for low-risk women.*

Nurse-midwives working together with obstetricians to deliver low-risk women at freestanding birth centers appears to be a safe and cost-effective option when the risk of complications is low. Investigators compared this option with the traditional U.S. model of obstetrician-managed hospital delivery. *A Prospective Study of an Out-of-Hospital Birth Center, Final Report* (NTIS Accession No. PB99-148827),** William Swartz, M.D., Principal Investigator (AHRQ grant HS07161).

- *Foreign-born Hispanic women have fewer low birthweight babies than American-born Hispanic women.*

Researchers used 1992 California birth certificate data on nearly 500,000 infants born to Asian, black, Hispanic, and white women to measure the relationship between maternal birthplace, ethnicity, and low birthweight (LBW) infants. Hispanic women born in the United States were more likely than those born in other countries to have moderately LBW

infants. Fuentes-Afflick, Hessol, and Perez-Stable, *Arch Pediatr Adolesc Med* 152:1105-1112, 1998 (AHRQ grant HS07373).

- *Report details causes and consequences of low birthweight.*

AHRQ's Low Birthweight Patient Outcomes Research Team (PORT) conducted a 5-year study of the many causes and consequences of low birthweight, particularly in minority and high-risk women. The studies were carried out by a multidisciplinary team of researchers at the University of Alabama at Birmingham and the Albert Einstein College of Medicine. *Low Birthweight in Minority and High-Risk Women. Patient Outcomes Research Team, Final Report* (AHRQ Publication No. 98-N005),* (Low Birthweight PORT contract 290-92-0055).

- *Shorter intervals between pregnancies are linked to higher risk of preterm birth.*

Researchers analyzed pregnancy intervals between first and second pregnancies in 4,400 women in Alabama who had received prenatal care in county clinics between 1980 and 1990. Women with only 13 weeks between the delivery of the first child and conception of a second child had nearly double the rate of preterm delivery than those with an interval of 104 weeks or more. Klerman, Cliver, and Goldenberg, *Am J Public Health* 88(8):1182-1185, 1998 (Low Birthweight PORT contract 290-92-0055).

- *Low-income women generally are satisfied with Norplant contraception.*

Researchers interviewed 1,152 Norplant users and 1,268 nonusers who attended family planning clinics in four Florida counties. After accounting for the women's sociodemographic and medical characteristics, 92 percent of Norplant users were satisfied with this method of birth control. Clarke, Schmitt, Bono, et al., *Am J Public Health* 88(8):1175-1181,1998 (AHRQ grant HS07965).

- *Screening for cystic fibrosis has little effect on parents' future reproductive decisions.*

In this study of Wisconsin families who had a child with cystic fibrosis (CF) between 1985 and 1994, most families whose first-born child had CF continued to have children, and only a few used prenatal diagnosis in future pregnancies. Mischler, Wilfond, Fost, et al., *Pediatr* 102(1):44-52, 1998 (AHRQ grant HS08570).

- *Most interventions to prevent preterm births do not work.*

Despite efforts to enhance prenatal care, provide more substance abuse prevention and treatment programs, offer psychological counseling and nutritional supplements, provide home uterine monitoring for early labor contractions, and ensure bed rest and hydration, the preterm birth rate has not declined. Treatment of urinary tract infection, closure of a structurally weak cervix, and treatment of bacterial vaginosis apply to only a small percentage of women at risk for preterm birth. Goldenberg and Rouse, *N Engl J Med* 339(5):313-320, 1998 (Low Birthweight PORT contract 290-92-0055).

- *Hypertension linked to premature delivery in black women.*

A review of hospital discharge records for black women who gave birth between 1988 and 1993 showed that those with pregnancy-induced hypertension were almost twice as likely to have preterm births as women with normal blood pressure. Chronic hypertension preceding pregnancy (one-and-a-half times as likely) and chronic hypertension aggravated by preeclampsia (four times as likely) also increased the likelihood of preterm births. Samadi and Mayberry, *Ob Gyn* 91(6):899-904, 1998 (AHRQ grant HS07400).

- *Four factors boost low-income women's satisfaction with prenatal care.*

In this study of 101 low-income women, satisfaction with prenatal care was associated with having a male practitioner, having a practitioner who explained procedures all of the time, waiting less than 20 minutes for appointments, and obtaining care at a site where ancillary services were offered. Homan and Korenbrot, *Med Care* 36(5):679-694, 1998 (AHRQ grant HS08115).

Hormone Replacement Therapy

Research indicates the median age of menopause in American women is 51 years, with a range of 41 to 59. Studies also document the decline in ovarian production of estrogen and progestin (before the complete cessation of menses) and the associated symptoms and illnesses some women experience. To address the concerns of women during the perimenopausal and postmenopausal period, AHRQ researchers continue to identify risks and benefits of hormone replacement therapy (HRT) and report findings related to its use.

Recent Findings

- *HRT does not appear to increase the risk of breast cancer recurrence.*

This systematic review of the published literature found 11 eligible studies conducted through May 1999, of which 4 studies had non-HRT control groups and included 214 breast-cancer survivors who began HRT after an average disease-free interval of 52 months. Over a 30-month followup, 4.2 percent of HRT users per year experienced a recurrence of breast cancer, compared with 5.4 percent of nonusers. Including all 11 studies in the analyses (669 HRT users) and using estimated control groups for the 7 uncontrolled trials did not significantly change the results. Col, Hirota, Orr, et al., *J Clin Oncol* 19:2357-2363, 2001 (AHRQ grant HS09796).

- *HRT may have some positive effects on cognitive function in symptomatic menopausal women.*

HRT improves verbal memory, vigilance, reasoning, and motor speed in women with menopausal symptoms, according to a systematic review of 17 studies on the effects of HRT on cognitive decline. The evidence also shows, however, that in asymptomatic women HRT has no consistent effects on the results of formal tests of cognitive function. Furthermore, asymptomatic postmenopausal women show no improvement in cognition. LeBlanc, Janowsky, Chan, et al., *JAMA* 285(11):1489-1499, 2001 (contract 290-97-0018).

- *HRT guides do not address many patient concerns.*

Investigators interviewed 26 women who had received an initial prescription for HRT and found that, on average, women reported 15 factors as critical to their HRT decision. HRT patient guides only addressed six factors. Since women typically consider their doctor's opinion, media reports, and the experiences of friends and family when making the HRT decision, the guides would be more useful if they covered these areas. Connelly, Ferrari, and Hagen, et al., *Ann Intern Med* 131(4):265-268, 1999 (NRSA fellowship F32 HS00107).

- *White women are more likely than minority women to receive HRT.*

This study involved nearly 9,000 women, aged 50 and older, who were outpatients at the University of California, San Francisco Medical Center, and were prescribed HRT. White women were significantly

more likely to be given HRT (33 percent) than Asians (21 percent), blacks (25 percent), Hispanics (23 percent), or Soviet immigrants (6.6 percent). Brown, Perez-Stable, Whitaker, et al., *J Gen Int Med* 14:663-669, 1999 (AHRQ grant HS07373).

- *Use of HRT is linked to sociodemographic factors.*

Patterns of HRT use were examined in a national sample of postmenopausal women during 1995. Results show that a woman's educational level, age, and location are more strongly associated with HRT use than are cardiovascular risk or other clinical factors. Keating, Cleary, Rossi, et al., *Ann Intern Med* 130:545-553, 1999 (NRSA training grant T32 HS00020).

Other Research

Research in Progress

- *Translating psychosocial and behavioral research into primary care for women.*

This project provides support for a conference, conducted with the American Psychological Association, Washington, DC. It will address the importance of psychosocial and behavioral factors in a number of major chronic diseases and conditions that affect women. Participants will address the translation of research in these areas into practice, community interventions, and health policy. Gwendolyn P. Keita, Principal Investigator (AHRQ grant HS10937).

Recent Findings

- *Nonprofit centers rate better than for-profits in serving disadvantaged women.*

Using data on 108 for-profit and 296 nonprofit women's health centers, investigators examined the association between center ownership and community benefits and concluded that nonprofit centers do a better job of serving disadvantaged women than for-profit centers. Their review showed that nonprofit centers serve larger proportions of uninsured women and rural women, offer reduced rates to more clients based on financial need, offer a broader range of primary care services, and provide clinicians with more frequent training opportunities. Khoury, Weisman, and Jarjoura, *Med Care Res Rev* 58(1):76-99, 2001 (AHRQ grant HS09328).

- *Women prefer to see a female physician when they visit the emergency room.*

Patients seeking care for nonurgent problems during a visit to an emergency department and again 1 week later were surveyed to assess the association between ratings of care and the sex of the attending physician. Women were significantly more satisfied with female than male doctors on four of seven satisfaction indicators. Men's satisfaction with care was not affected by the physicians' sex. Derose, Hays, McCaffrey, et al., *J Gen Intern Med* 16:218-226, 2001 (NRSA training grant T32 HS00046).

- *Women are less likely than white men to be recommended for kidney transplants.*

A national random survey of 271 U.S. nephrologists was used to gauge their criteria for transplant recommendations for people with end-stage renal disease. All clinical factors being equal, results show that

white men were almost 2.5 times as likely as white women to be recommended for kidney transplants. White women were equally as likely as black women and Asian men were half as likely as white men to be recommended for transplantation. Thamer, Hwang, Fink, et al., *Transplantation* 71(2):281-288, 2001 (AHRQ grant HS08365).

- *Link found between women's subjective assessments of socioeconomic status and health.*

Investigators explored the relationship between how individuals perceive their socioeconomic status (subjective SES) and health, and found subjective SES was significantly related to health in an ethnically diverse group of pregnant women. However, household income continued to predict health after accounting for subjective SES among Hispanic and black women. Objective indicators made no additional contribution to explaining health among white and Chinese-American women. Ostrove, Adler, Kuppermann, et al., *Health Psychol* 19(6):613-618, 2000 (AHRQ grant HS07373).

- *Sexual assault is a major problem for homeless women.*

A study of nearly 1,000 homeless women 15 to 44 years of age in Los Angeles County revealed that 13 percent of the women had been raped during the previous year, and half had been raped two or more times during the year. The authors note the striking association of rape with all aspects of women's health and suggest that all homeless women who seek care and have serious mental, physical, or substance abuse problems should be screened for violent experiences. Wenzel, Leake, and Gelberg, *J Gen Int Med* 15:265-268, 2000 (AHRQ grant HS08323).

Medical Expenditure Panel Survey

In 1996, AHRQ launched the Medical Expenditure Panel Survey (MEPS), a nationally representative survey to collect detailed information on health status, health care use and expenses, and health insurance coverage for individuals and families in the United States, including nursing home residents. MEPS is helping the Agency to address many questions important to women, including how health insurance coverage, access to care, use of preventive care, the growth of managed care, changes in private health insurance, and other changes in the health care system are affecting the kinds, amounts, and costs of health care services used by women.

Alternative Medicine

Alternative medicine is growing in popularity, but the scientific foundation to support studies of alternative and complementary medicine therapies is inadequate. AHRQ has been supporting research on complementary and alternative medicine for about 10 years. Early studies in this area have focused on the effectiveness and cost-effectiveness of alternative therapies, including chiropractic care, acupuncture, and manual therapy for treatment of low back pain, as well as satisfaction among patients receiving alternative treatments compared with those receiving conventional treatment.

Currently, AHRQ is collecting information through MEPS on use of alternative medicine. In addition, the Agency is providing support for a national alternative medicine ambulatory care survey, which is being conducted by the Group Health Cooperative of Puget Sound. The survey includes acupuncturists, chiropractors, massage therapists, and naturopaths. Through AHRQ's evidence-based practice initiative, garlic and silybum marianum have been evaluated for use in the treatment of certain diseases and conditions. In the future, AHRQ will collaborate with the Center for Complementary and Alternative Medicine at the National Institutes of Health to study additional topics.

More Information

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For more information about AHRQ and its research portfolio and funding opportunities, visit the Agency's Web site at http://www.ahrq.gov/.

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